SONY

PROFESSIONAL DISC RECORDER

PDW-F1600
PDW-HD1500

XDCAM HD
Professional Disc System

Professional Disc
DL

MPEG HD422

CINEALTA

INSTALLATION MANUAL
1st Edition (Revised 2)

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

安全のために，周辺機器を接続する際は，過大電圧を持つ可能性があるコネクターを以下のポートに接続しないでください。
：NETWORKコネクター
上記のポートについては本書の指示に従ってください。

For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to the following port(s).
: NETWORK connector
Follow the instructions for the above port(s).

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

本機をラックに設置するとき

熱の適切な排気・発散を得るために，ラックと本機の間には，以下の空間を確保してください。
- 上面2 cm以上
- 左右両側面2 cm以上
- 後面25 cm以上

注意

指定以外の電池に交換すると，破裂する危険があります。
使用済の電池は，説明書に従って処理してください。

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

VAROITUS

Paristo voi räjähtää jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Laser Diode Properties

Wavelength :	400 to 410 nm
Emission duration :	Continuous
Laser output power :	135 mW (max. of pulse peak.) 65 mW (max. of CW)
Standard :	IEC60825-1 (2001)

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION

The use of optical instruments with this product will increase eye hazard.

CLASS 1 LASER PRODUCT
LASER KLASSE 1 PRODUKT
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

This Professional Disc Recorder is classified as a CLASS 1 LASER PRODUCT.

This label is located on the top panel of the drive unit.

GEFAHR

Bei geöffnetem Laufwerk und beschädigter oder deaktivierter Verriegelung tritt ein unsichtbarer Laserstrahl aus. Direkter Kontakt mit dem Laserstrahl ist unbedingt zu vermeiden.

Attention-when the product is installed in Rack:

1. **Prevention against overloading of branch circuit**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. **Providing protective earth**
   When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. **Internal air ambient temperature of the rack**
   When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. **Prevention against achieving hazardous condition due to uneven mechanical loading**
   When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

5. **Install the equipment while taking the operating temperature of the equipment into consideration**
   For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

6. **When performing the installation, keep the following space away from walls in order to obtain proper exhaust and radiation of heat.**
   Top: 2 cm (1 inches) or more
   Right, Left: 2 cm (1 inches) or more
   Rear: 25 cm (10 inches) or more

Table of Contents

Manual Structure

1. Installation

Manual Structure

Purpose of this manual

This manual is the installation manual of Professional Disc Recorder PDW-F1600/HD1500.
This manual is intended for use by trained system and service engineers, and describes the information on installing the PDW-F1600/HD1500.

Related manuals

Besides this Installation Manual, the following manuals are prepared for PDW-F1600/HD1500.

- **Operation Manual (Supplied with this unit)**
  This manual describes the application and operation of this unit.

- **Maintenance Manual volume 1 (Available on request)**
  This manual describes detailed service overview, error messages, periodic check and maintenance, replacement of main parts, and alignments required for parts-level service.
  For obtaining, contact your local Sony Sales Office/Service Center.

- **Maintenance Manual volume 2 (Available on request)**
  This manual describes detailed parts list, block diagrams, schematic diagrams, and board layouts required for parts-level service.
  For obtaining, contact your local Sony Sales Office/Service Center.

Trademarks

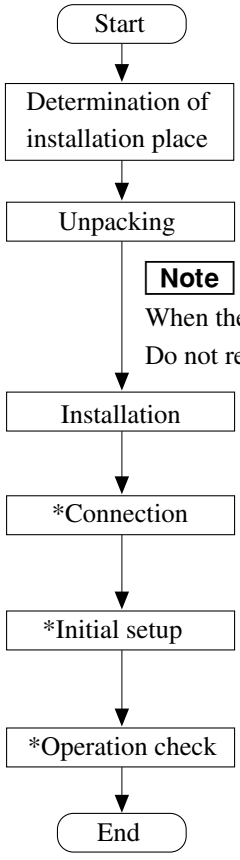
Trademarks and registered trademarks used in this manual are follows.

- Ethernet is a registered trademark of Xerox Corporation.

Section 1
Installation

1-1. Installation Procedure

Installation procedure of this unit is shown on the following flowchart.
Refer to each section about detail of each flow.
The operation manual is also required to do ∗-marked flow.



1-3. Operating Conditions
1-4. Power Supply

Note

When the unit is transported, it is required to pack the unit into the specified new packing materials.
Do not reuse the packing materials.

1-5. Installation Space

1-6. Connectors / Cables
1-7. Signal Inputs and Outputs

1-8. Settings after Installation

1-2. Supplied Accessories

Cap, BNC 12
Cap, DC OUT 1
Cap, XLR (F) 2
Cap, XLR (M) 4
Cap, DUST 2
Operation manual (Japanese) 1
Operation manual (English) 1
Installation manual 1
CD-ROM (Operation manual) 1
CD-ROM (XDCAM APPLICATION SOFTWARE) 1

Note

After installation, be sure to use the supplied cap for protecting unused connector.

1-3. Operating Conditions

CAUTION

Do not block an air vent. If ventilation is not enough, the unit may be damaged due to increase of the internal temperature of the unit.

- Do not shove the unit into a cramped place with poor ventilation.
- Be sure to make cleaning if a cooling fan or air vent is covered with dust.
- Do not turn over the unit or place the unit on its side.
- Do not place the unit on a longhaired carpet.
- Do not cover the unit with cloth.

Note

Good air circulation is essential to prevent internal heat build-up. Place the unit in location with sufficient air circulation.
Do not block the ventilation holes of the cabinet and the front and rear panels.

Operating temperature: 5 °C to 40 °C
Operating humidity: 25 % to 90 % (Condensation not allowed)
Storage temperature: −20 °C to 60 °C
Locations to avoid:

- Areas where the unit will be exposed to direct sunlight of any other strong lights.
- Areas near heat sources.
- Dusty areas or areas subject to vibration.
- Areas with strong magnetic field.
- Areas with much electrical noise.
- Areas with much static electricity.
- Areas that is impossible to find a specified room for installation.
  (Refer to Section “1-5. Installation Space” .)
- Areas windtight.

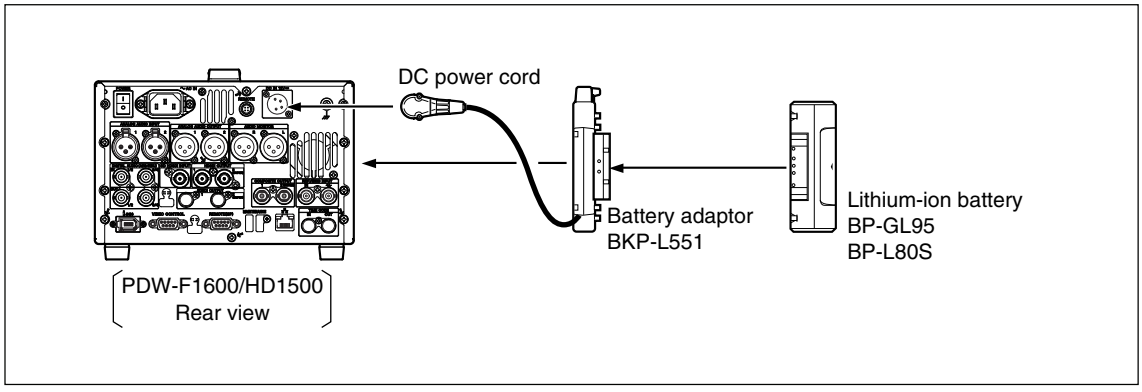
1-4. Power Supply

The unit works with three types of power supply: AC, DC, and a battery. When repairing or checking the unit, using AC power is recommended.

Power voltage:	100 to 240 V AC
	11 to 17 V DC
Power consumption:	AC: 80 W
	DC: 65 W (at power save mode 55 W)

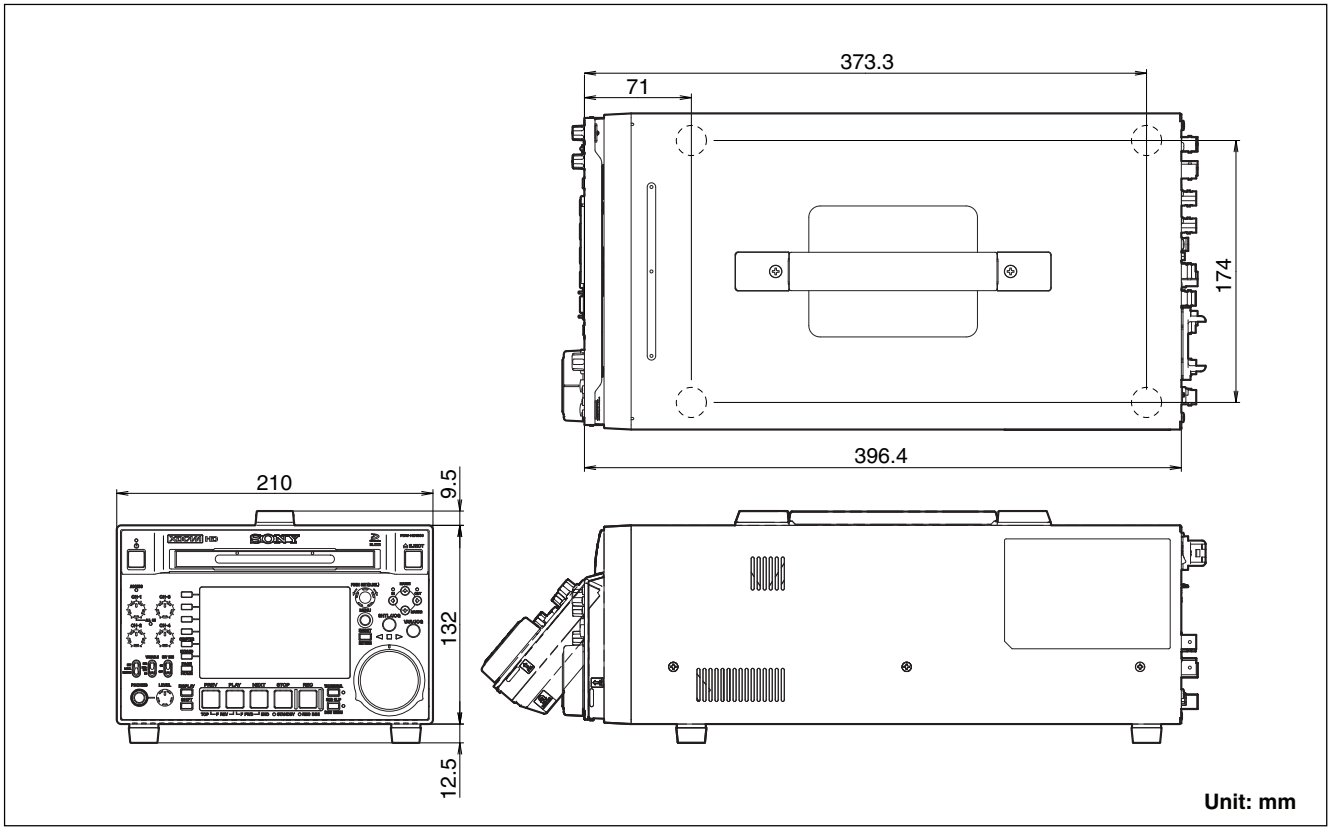
Note

When using the battery, check the remaining amount with the indicator on the side of the battery. When the battery is nearly dead, the battery indicator on the left side of the LCD panel will blink. For details, refer to the operation manual supplied with the unit.



1-5. Installation Space

1-5-1. Outside Dimensions



1-5-2. Notes on Installation

CAUTION

To avoid an injury, do not install the unit on rickety table.

Ventilation and Installation Space for Servicing

- Do not block the air exhaust sections (rear panel) and the air vent (bottom of front side and both the right and left sides).
- Do not install the unit with the feet (four parts on the bottom) removed.
- In order to make a unit with good ventilation, ensure sufficient clearance around the unit.
- Be sure to provide 2 cm or more space to both the right and left sides and the top of the unit, and 25 cm or more space behind the unit.
- Do not install equipment on this unit.

Note

Provide 2 cm or more space to both right and left sides of the unit. Providing 20 cm or more space above the unit is recommended considering service operations.

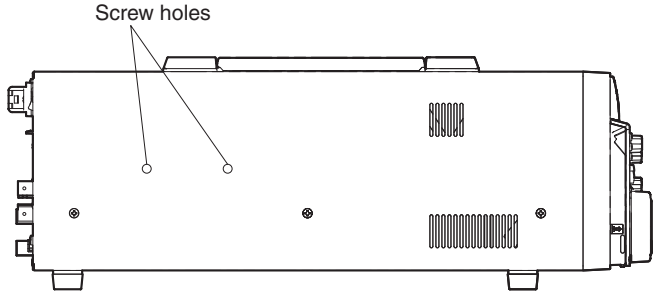
Battery Adapter Attachment

When the unit is operated with a battery, be sure to use the following battery adapter and battery pack:

- Battery adapter: BKP-L551
- Battery pack: BP-GL95
  BP-L80S

Attaching Position of the Battery Adapter

Install the battery adapter by screwing two screws into the holes on the left side of the unit.
Regarding installation, refer to the operation manual.



PDW-F1600/HD1500 Left side view

1-5-3. Rack Mounting

Notes on Rack Mounting

- A rise in temperature inside the rack due to a residual heat by neighboring units will bad effects on the unit. Check that the temperature inside the rack is within the range of specified operating temperature of the unit.
- Do not cover the exhaust port or ventilation holes (lower front, right and left sides).
- When installing units side by side, leave 1 cm or more of space to the both side of each PDW-F1600/HD1500.
  Blocking the air intake will damage the unit.
- Leave 25 cm or more of space to the rear of the unit.
- Use a commercially available rack mount kit.
  Select an appropriate shelf taking size and weight of the unit into consideration.
- Never remove the top and bottom panels, handle, or legs of the unit when installing.
- Use adequately long cables for connection of the connector panel, considering that the unit is pulled out from the rack.

Note

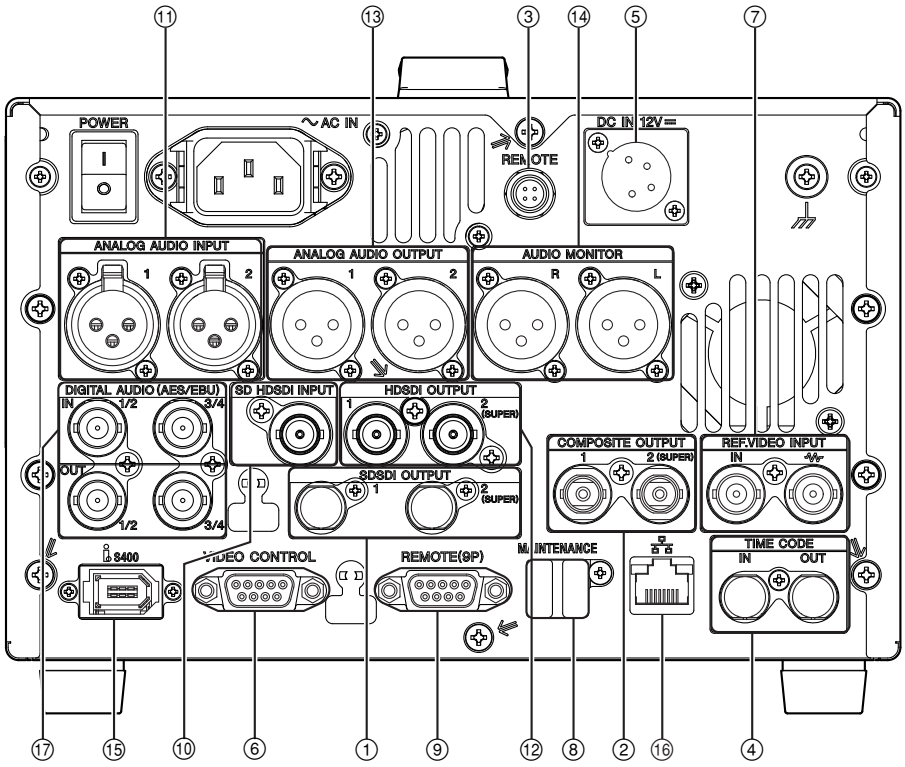
After rack mounting, check that the temperature inside the rack is within the range of 5 ˚C through 35 ˚C.

1-6. Connectors/Cables

When external cables are connected to the connectors of this unit, the hardware listed below (or equivalents) must be used:

Panel indication	Connection connector (Sony P/N)	Connection cable (Sony P/N)
REF. VIDEO INPUT COMPOSITE OUT TIME CODE IN TIME CODE OUT	Plug, BNC, 75 Ω	BELDEN 8281 cable or equivalent
SDSDI OUTPUT	Plug, BNC, 75 Ω	BELDEN 8281 cable or equivalent Maximum cable length: 200 m (Reference value based on DNW series)
SD/HDSDI INPUT HDSDI OUTPUT DIGITAL AUDIO (AES/EBU) IN DIGITAL AUDIO (AES/EBU) OUT	Plug, BNC, 75 Ω	BELDEN 1694A cable or equivalent Maximum cable length: 100 m (Reference value based on HDW series)
ANALOG AUDIO INPUT	XLR 3P, MALE (1-508-084-00)	–
ANALOG AUDIO OUTPUT AUDIO MONITOR	XLR 3P, FEMALE (1-508-083-00)	–
DC IN	XLR 4P, FEMALE (1-508-362-00)	DC power cord (1-551-577-00: supplied with AC-550/550CE)
REMOTE	Plug 4P MALE (1-566-425-11)	–
REMOTE (9P) VIDEO CONTROL	D-sub 9P MALE	9P remote control cable (RCC-G series) RCC-5G (5 m)/10G (10 m)/30G (30 m)
PHONES	JM-60 stereo phone plug (commercially available)	–
S400 (i.LINK)	IEEE1394 6P	STP cable is recommended. (STP: Shielded Twist Pair)
(NETWORK)	RJ-45 8P	1000BASE-T standard conformity article UTP cable is recommended. (UTP: Unshielded Twist Pair)

1-7. Signal Inputs and Outputs



Communications connectors

⑥	VIDEO CONTROL	D-SUB 9P connector ×1 (for HKDV-900 connection) Video control
⑨	REMOTE (9P)	D-SUB 9P connector ×1 (RS-422A interface) Remote control
⑯	S400 (i.LINK)	6P, Conform to IEEE1394, Correspond to S400
⑰	(NETWORK)	RJ-45 8P modular jack 10BASE-T (Conform to IEEE802.3i) 100BASE-TX (Conform to IEEE802.3u) 1000BASE-T (Conform to IEEE802.3ab)

Input connectors

④	TIME CODE IN	BNC ×1 Time code 0.5 to 18.0 V p-p, High Impedance, unbalanced
⑤	DC IN 12V	XLR 4-pin ×1 DC +11 to 17 V
⑦	REF.VIDEO INPUT	BNC ×2 (In loop through connection) External reference video signal SD: 0.3 V p-p, 75 Ω, negative sync (Black burst or composite sync) HD: 0.6 V p-p, 75 Ω, negative sync (3-level sync)
⑩	SD/HDSDI INPUT	BNC ×1 SD: Component digital (270 Mbit/s) SMPTE 259M HD: Component digital (1.485 Gbit/s) SMPTE 292M
⑪	ANALOG AUDIO INPUT 1, 2	XLR 3-pin ×2 Analog audio 2 channels −60 dBu (MIC selected), −6 dBu, −3 dBu, 0 dBu, +4 dBu selectable, high impedance, balanced
⑰	DIGITAL AUDIO IN (AES/EBU)	BNC ×2 (1 set: CH1/2, CH3/4) Digital audio AES/EBU format, Conform to AES-3id-1995

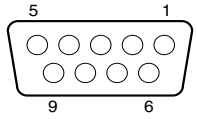
Output connectors

①	SDSDI OUTPUT 1	BNC ×1 Component digital (270 Mbits/s) SMPTE 259M/ITU-R BT.656
	SDSDI OUTPUT 2 (SUPER)	BNC ×1 (Character superimpose enabled) Component digital (270 Mbits/s) SMPTE 259M/ITU-R BT.656
②	COMPOSITE OUTPUT 1	BNC ×1 Analog composite video 1.0 V p-p, 75 Ω, negative sync
	COMPOSITE OUTPUT 2 (SUPER)	BNC ×1 (Character superimpose enabled) Analog composite video 1.0 V p-p, 75 Ω, negative sync
③	REMOTE	4-pin connector ×1 (RM-280) DC +12 V (+11 to 17 V), 0.5 A (max)
④	TIME CODE OUT	BNC×1 Time code 1.2 V p-p ±3 dB (75 Ω load), unbalanced
⑫	HDSDI OUTPUT 1	BNC ×1 Component digital (1.485 Gbits/s) SMPTE 292M
	HDSDI OUTPUT 2	BNC ×2 (Character superimpose enabled) Component digital (1.485 Gbits/s) SMPTE 292M
⑬	ANALOG AUDIO OUTPUT 1, 2	XLR 3-pin ×2 Analog audio 2 channels (Channel selectable from menu) +4 dBu, 0 dBu, −3 dBu, −6 dBu selectable (600 Ω load), low impedance, balanced
⑭	AUDIO MONITOR R, L	XLR 3-pin ×2 Analog audio channel (Channel selectable from menu) +4 dBu, 0 dBu, −3 dBu, −6 dBu selectable (600 Ω load), low impedance, balanced
⑰	DIGITAL AUDIO OUT (AES/EBU)	BNC ×2 (1 set: CH1/2, CH3/4) Digital audio AES/EBU format, Conform to AES-3id-1995
	PHONES (at the front)	JM-60 stereo phone jack Analog audio up to −13 dBu adjustable (8 Ω load), unbalanced

Other

⑧	MAINTENANCE	High-Speed USB (USB2.0) ×2

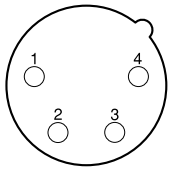
⑨ REMOTE (9P): 9-pin (female)



(External View)

Pin No.	Signal
1	GND
2	RM TX (–) (Output)
3	RM RX (+) (Input)
4	GND
5	NC
6	GND
7	RM TX (+) (Output)
8	RM RX (–) (Input)
9	GND

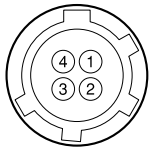
⑤ DC IN 12V: 4-pin (male)



(External View)

Pin No.	Signal
1	GND
2	NC
3	NC
4	EXT DC

③ REMOTE: 4-pin (female)

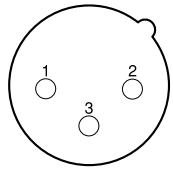


(External View)

Pin No.	Signal
1	UNREG GND
2	NC
3	NC
4	UNREG +12 V

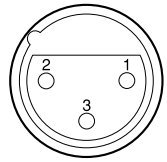
⑪ ANALOG AUDIO INPUT: 3-pin (female)
⑬ ANALOG AUDIO OUTPUT: 3-pin (male)
⑭ AUDIO MONITOR OUTPUT: 3-pin (male)

Male



(External View)

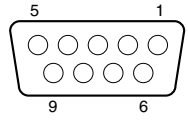
Female



(External View)

Pin No.	Signal
1	GND
2	X
3	Y

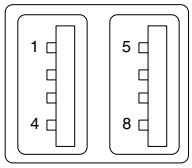
⑥ VIDEO CONTROL: 9-pin (female)



(External View)

Pin No.	Signal
1	GND
2	VPC_TX (–) (Output)
3	VPC_RX (+) (Input)
4	GND
5	NC
6	GND
7	VPC_TX (+) (Output)
8	VPC_RX (–) (Input)
9	GND

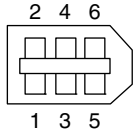
⑧ MAINTENANCE



(External View)

Pin No.	Signal
1	USB1_VBUS
2	USB1_D–
3	USB1_D+
4	GND
5	USB2_VBUS
6	USB2_D–
7	USB2_D+
8	GND

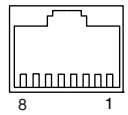
⑮ S400 (i.LINK) : (6P)



(External View)

Pin No.	Signal	I/O	Specifications
1	VP	I	BUS POWER
2	VG	–	GND
3	NTPB	I/O	STROBE B (–)
4	TPB	I/O	STROBE B (+)
5	NTPA	I/O	DATA A (–)
6	TPA	I/O	DATA A (+)

⑯ (NETWORK)



(External View)

Pin No.	Signal	I/O
1	BI DA+	I/O
2	BI DA–	I/O
3	BI DB+	I/O
4	BI DC+	I/O
5	BI DC–	I/O
6	BI DB–	I/O
7	BI DD+	I/O
8	BI DD–	I/O

1-8. Settings after Installation

For the settings after installation, refer to the operation manual.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

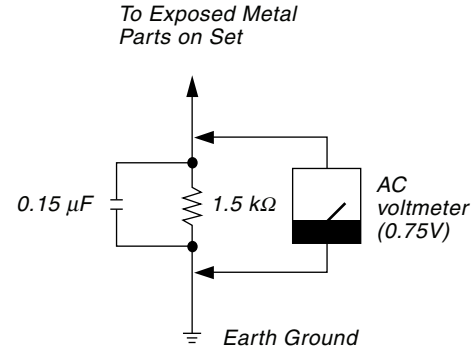


Fig A. Using an AC voltmeter to check AC leakage.

PDW-F1600 (CN)
PDW-F1600 (SY)
PDW-HD1500 (CN)
PDW-HD1500 (SY) J, E
3-398-656-03

Sony Corporation

Printed in Japan
2009. 5 16